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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,552	12/04/2003	David Johnston	1020.P17478	8773
57035	7590	05/30/2007		
KACVINSKY LLC C/O INTELLEVATE P.O. BOX 52050 MINNEAPOLIS, MN 55402			EXAMINER JUNTIMA, NITTAYA	
			ART UNIT 2616	PAPER NUMBER
			MAIL DATE 05/30/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/728,552

Applicant(s)

JOHNSTON, DAVID

Examiner

Nittaya Juntima

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/25/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. Applicant is reminded of the proper content of an abstract of the disclosure.

The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. It should be a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. The abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if a process, the steps.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 and 13-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 5, limitation "said protocol" lacks antecedent basis. Claims 2-9 depend from claim 1, and are therefore rejected accordingly.

In claim 13, line 6, limitation "said protocol" lacks antecedent basis. Claim 14 depends from claim 13, and is therefore rejected accordingly.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 15-17, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by art of record, Valenci (US 2003/0185220 A1).

Regarding claim 1, Valenci teaches an apparatus (network adapter 80, Fig. 1), comprising:

A configuration module (rules memory 100a, Fig. 3) to store configuration information (action rules). See paragraph 32.

A parsing module (rule-based parser 60b, Fig. 3 and action module 160, Fig. 3, collectively) to connect to said configuration module, said parsing module to receive a frame of information (a received packet on path 177, Fig. 3/step 195 in Fig 5A) and determine a frame format associated with said frame (identifying packet type in step 201, Fig. 5A), retrieve configuration information corresponding to said frame format and reconfigure a set of hardware

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elements to parse said frame (parsing actions are retrieved and performed on the received packet based on the packet type by hardware components of the Ethernet device 55, Fig. 2 as shown in steps 205 and 207 in Fig. 5A, see also paragraphs 27, 30, 35-36, 39-40).

Regarding claim 2, Valenci teaches that said parsing module outputs a field type for said frame (packet type of the received packet is identified by the rule-based parser 60b, Fig. 3, see step 203 in Fig. 5A and paragraphs 35, 39-40).

Regarding claim 3, Valenci also teaches that said parsing module comprises a table driven non-deterministic push down finite automaton (since a table driven non-deterministic push down finite automaton is not defined, the claim is interpreted as the rule based parser 60b using a parser table/TABLE 1 representing a state machine 180 to classify packet and split data from packet header, paragraphs 33 and 35).

Regarding claim 4, Valenci teaches that said configuration module (rules memory 100a, Fig. 3) comprises:

A state table module to store state information (TABLE 1/parser table contains state information, i.e., S_0, S_1, S_2, \dots , paragraph 33).

A transition table module to store transition information (TABLE 1/parser table contains transition information, i.e., PRE and POST States, paragraphs 33 and 34).

Regarding claim 15, Valenci teaches a method (Fig. 5A) to perform frame parsing, comprising:

Receiving a frame (packet) of information (step 195, paragraph 39).

Determining a frame format (packet type) associated with said frame (step 201, paragraph 39).

Reconfiguring a parsing module (action module 160, Fig.3) to parse said frame of information (action rules control the action module 160 to perform parsing actions on the received packet, Figs. 5A, steps 205,207, see also paragraphs 27, 30, 35-36, 39).

Parsing said frame for frame format information using said reconfigured parsing module (Fig. 5A, steps 205 or 207, e.g., breaking TCP packet into TCP data and TCP header, see also paragraphs 27, 35-39).

Regarding claim 16, Valenci further teaches wherein said reconfiguring comprises:

Retrieving configuration information (action rules) from a configuration module (action rules memory 175, Fig.3) corresponding to said frame format (paragraphs 30, 32, 36, steps 203-207, Fig. 5A).

Reconfiguring said parsing module using said configuration information (paragraphs 36-36).

Regarding 17, Valenci teaches that said configuration information comprises state information from a state table and transition information from a transition table (action rules use the state machine 180, Fig.4 which is represented by parser table/TABLE 1 containing state

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information i.e., S_0, S_1, S_2, \dots , and transition information, i.e., PRE and POST States, see claim 8, paragraphs 33-38).

Regarding claim 19, Valenci further teaches delaying said frame until said frame format information is parsed (the packet is not forwarded to the host system 30a, Fig. 2 until being processed by the action module 10, Fig. 3, see the last five lines of paragraph 32).

5. Claims 1-2, 7-9, 15-16, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Sarkinen (US 6,904,057 B2).

Regarding claim 1, as shown in Fig. 3, Sarkinen teaches an apparatus, comprising:

A configuration module (element 320) to store configuration information.

A parsing module (elements 310 and 330 constitute a parsing module) to connect to said configuration module, said parsing module to receive a frame of information (incoming frame 314) and determine a frame format associated with said frame (the preliminary multi-protocol frame classification 312), retrieve configuration information corresponding to said frame format (parsing instructions 322), and reconfigure a set of hardware elements to parse said frame (hardware elements must be reconfigured in order to provide multi-stage parsing of the incoming frame 314 is provided). See col. 10, lines 37-62, col. 11, lines 4-23, and step 712, Fig. 7.

Regarding claim 2, Sarkinen teaches that said parsing module (elements 310 and 330, Fig. 3 constitute a parsing module) outputs a field type for said frame (search results

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322, Fig. 3 represent information about the incoming frame 314, e.g., identification of the fields in the packet/the frame classification, col. 10, lines 49-50, 59-62 and col. 12, lines 61-64).

Regarding claim 7, Sarkinen also teaches that said parsing module (elements 310 and 320, Fig. 3 constitute a parsing module) comprises a microcode sequencer (col. 11, lines 14-16).

Regarding claim 8, Sarkinen further teaches that said configuration module (element 320, Fig. 3) comprises microcode memory (memory 430, Fig. 4) to store mask data (bit mask, col. 11, lines 14-23, 44-59, col. 12, lines 36-38, 48-53), compare data (instructions for relative compare/fixed compare, col. 12, lines 36-38, 48-53), branch addresses (branch instructions, col. 12, lines 36-38, 48-60) and field types (field's predetermined conditions, col. 12, lines 48-60 and col. 13, lines 59-64).

Regarding claim 9, Sarkinen also teaches a delay line module (the dual port memory buffer 416, Fig. 4) to buffer said frame during said frame parsing (col. 12, lines 24-26, 36-42, col. 13, lines 1-3).

Regarding claim 15, Sarkinen teaches a method (Fig. 3) to perform frame parsing, comprising:

Receiving a frame of information (receiving incoming frame 314, col. 10, lines 39-42).

Determining a frame format associated with said frame (the preliminary multi-protocol frame classification 312 for frame 314 is produced, col. 10, lines 39-42).

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Reconfiguring a parsing module to parse said frame of information (parsing instructions 322 are used to control a multi-stage parsing engine 330 for processing frame 314, col. 10, lines 42-48, 59-62, col. 11, lines 14-23).

Parsing said frame for frame format information using said reconfigured parsing module (a multi-stage parsing engine 330 parses frame 314 using parsing instructions 322, col. 10, lines 45-48, 59-62).

Regarding claim 16, Sarkinen further teaches wherein said reconfiguring comprises:

Retrieving configuration information (parsing instructions 322, Fig.3) from a configuration module (a parsing instructions generator 320, Fig.3) corresponding to said frame format (col. 10, lines 42-45, see also step 712 in Fig. 7).

Reconfiguring said parsing module using said configuration information (col. 10, lines 42-47 and 59-62, col. 11, lines 14-23).

Regarding claim 18, Sarkinen further teaches that said configuration information (parsing instructions 322, Fig.3) comprises microcode information (microcode instruction set) from a microcode module (microcode module reads on means that generates microcode instruction set, col. 10, lines 59-62 and col. 11, lines 14-23).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over art of record, Valenci (US 2003/0185220 A1) in view of Sikdar (US 7,130,987 B2).

Regarding claim 5, Valenci teaches a mapping module to connect to said parsing module (a mapping module must be connected to map/associate the packet type with the parsed state, paragraph 39 and Fig. 5A, step 203).

Valenci does not explicitly teach a stack to connect to said parsing module.

However, as shown in Fig. 6, Sikdar teaches using a stack 222 (equivalent to a stack connecting to the parsing module) to store and sequence the production rules (equivalent to configuration information, col. 4, lines 26-41) executed by DXP 200 (equivalent to a parsing module, col. 3, lines 56-63) which controls the processing of input packets (col. 5, lines 30-35).

Therefore, it would have been obvious to one skilled in the art at the time of the invention. to modify the teaching of Valenci to include a stack to connect to said parsing module as claimed. The suggestion/motivation to do so would have been to store and sequence the configuration information executed by the parsing module.

Regarding claim 6, Valenci also teaches a delay line module (FIFO) to buffer said frame during said frame parsing (a FIFO used for "on-the-fly" parsing, paragraph 35).

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over an art of

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record, Korpela (EP 0 852 448 A1) in view another art of record, Valenci (US 2003/0185220 A1).

Regarding claim 10, Korpela teaches a system (Fig. 1), comprising:

At least one base station (radio access networks 20a, 20b, 20c, Fig. 1) to communication frames of information using a plurality of different frame formats (col. 4, lines 12-16, col. 8, lines 50-56)

A mobile station (mobile terminal 10, Fig. 1) to receive said frames of information, said mobile station comprising a receiver (RF circuit 12, digital signal processor device 13, and control device 15 constitute a receiver) to receive and process said frames (col. 4, lines 25-40, col. 8, lines 50-56).

However, Korpela does not teach that said receiver is to be reconfigured to dynamically process said frames in accordance with said different frame formats.

Valenci teaches a MAC 90, Fig. 2 that is reconfigured to dynamically process received frames according to different frame formats (paragraphs 22, 30-32 and 39 and Fig. 5A).

Therefore, since the receiver of Korpela also includes an inherent MAC unit to process MAC layer (col. 6, lines 6-12) and receives different type of frame formats (col. 4, lines 25-30) and given the teaching of Valenci on reconfiguring the MAC to dynamically process different frame formats, it would have been obvious to one skilled in the art at the time of the invention was made to modify the teaching of Korpela to incorporate Valenci teaching such that the receiver would be reconfigured to dynamically process said frames according to said different frame formats as claimed. The suggestion/motivation to do so would have been to enable

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various desired actions on a frame based on a parsed state/type of a frame using a set of dynamically loadable parsing and action rules (Valenci, paragraph 30, see also paragraph 39).

9. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over an art of record, Korpela (EP 0 852 448 A1) in view another art of record, Valenci (US 2003/0185220 A1), and further in view of Johnson (US 7,184,722 B1).

Regarding claim 11, although Korpela teaches the inherent MAC unit (the media access controller) for processing MAC layer (col. 6, lines 6-12), the combined teaching of Korpela and Valenci does not explicitly teach that the receiver comprises a power amplifier, an RF/IF converter to connect to said power amplifier, an IQ module to connect to said RF/IF converter, a baseband processor to connect to said IQ module and the media access controller.

However, Johnson teaches a wireless transmitter such as a mobile unit 18 in Fig. 2 for communicating to a plurality of base stations that includes a receiver (radio 60 working in a receiving direction as shown in Figs. 5A and 5B) comprising a power amplifier (amplifier 75, Fig. 5A in the reception portion), an RF/IF converter (RF/IF converter 72, Fig. 5A in the reception portion), an IQ module (I/Q modem 68, Fig. 5B in the reception portion), and a baseband processor (baseband processor PHY 66, Fig. 5B in the reception portion) connecting to a MAC (MAC 64, Fig. 5B). See col. 8, lines 7-18, 41-col. 9, lines 1-42.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to further modify the combined teaching of Korpela and Valenci such that the power amplifier, RF/IF converter, IQ module, and baseband processor would be connected to the

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receiver and media access controller as claimed. The suggestion/motivation to do so would have been to enable the received wireless signal carrying data to be processed correctly.

Regarding claim 12, Korpela does not teach that the inherent MAC (see rejection of claim 10) comprises a reconfigurable hardware-based frame parser.

However, Valenci teaches a MAC 90, Fig. 2 (equivalent to the media access controller) that comprises a dynamic parser 60a, Fig. 2 and memory 100, Fig. 2, collectively (equivalent to a reconfigurable hardware-based frame parser). See paragraphs 22, 30, 32, and 39.

Given the teaching of Valenci, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Korpela and Johnson to further include a reconfigurable hardware-based frame parser as claimed. The suggestion/motivation to do so would have been to provide an ability to the MAC to dynamically load parsing/action rules rather than using microcode for manipulating packets as suggested by Valenci (paragraph 31, lines 1-4).

Regarding claim 13, the combined teaching of Korpela and Johnson does not teach that said reconfigurable hardware-based frame parser comprises a configuration module and a parsing module as claimed.

However, Valenci teaches that a dynamic parser 60a, Fig. 2 and memory 100, Fig. 2, collectively (equivalent to reconfigurable hardware-based frame parser) residing in the MAC 90, Fig. 2 comprises:

A configuration module (rules memory 100a, Fig. 3) to store configuration information (action rules). See paragraph 32.

A parsing module (rule-based parser 60b, Fig. 3 and action module 160, Fig. 3, collectively) to connect to said configuration module, said parsing module to receive a frame of information (a received packet on path 177, Fig. 3/step 195 in Fig 5A) and determine a frame format associated with said frame (identifying packet type in step 201, Fig. 5A), retrieve configuration information corresponding to said frame format and reconfigure a set of hardware elements to parse said frame (parsing actions are retrieved and performed on the received packet based on the packet type by network hardware components as shown in steps 205 and 207 in Fig. 5A, see also paragraphs 27, 30, 35-36, 39-40).

Given the teaching of Valenci on the configuration module and parsing module, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Korpela and Johnson such that the configuration module and parsing module would be included as claimed. The suggestion/motivation to do so would have been to provide an ability to dynamically load parsing/action rules rather than using microcode for manipulating packets (Valenci, paragraph 31, lines 1-4) and use parser/action rules to identify packet type and corresponding processing action (Valenci, paragraph 39).

Regarding claim 14, neither Korpela nor Johnson teaches a delay line module for buffering said frame during said frame parsing.

However, Valenci teaches a FIFO used for “on-the-fly” parsing (equivalent to a delay line module) for buffering a frame during a frame parsing (paragraph 35).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Korpela and Johnson to include a delay line module as claimed. The suggestion/motivation to do so would have been to begin parsing before the packet was fully received (Valenci, the last five lines of paragraph 35).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US 2004/0125807 A1, disclosing configurable Ethernet frame parser (Figs. 2-4, and 9, paragraphs 29-33, 39, and claim 1).
- US 6,611,524 B2, disclosing a programmable data packet parser (Abstract, Figs. 5 and 5, and col. 7, lines 48-col. 9, lines 7).

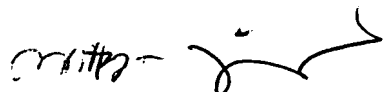
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Nittaya Juntima', with a long horizontal stroke extending to the right.

Nittaya Juntima
Patent Examiner
May 15, 2007